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Lord Lindsay, M.P., President, in the Chair.

Maxwell Hall, Esq., M.A., Jamaica; and
James L. McCance, Esq., Rathfern, Rayner's Road, Putney Hill;
were balloted for and duly elected Fellows of the Society.

On the Supposed Influence of a Mass of Brickwork upon the Errors of a Transit Instrument in its Neighbourhood. By John J. Plummer, M.A.

During a considerable portion of the years 1875–6 I was engaged in work that necessitated a strict watch upon the errors of the small transit instrument which serves as an adjunct to the Equatoreal of this Observatory for the determination of true time. It was my practice to find the level error upon each evening of observation, and to employ it in the reduction of that night's work; while the azimuth error was determined as often as was deemed necessary, or as circumstances permitted. The method employed for ascertaining the latter was generally the observation of a polar and a low southern star, and the errors adopted for the reductions are the means of two, three, or more such determinations. It was soon found that both errors, but particularly the azimuth, were very fairly steady for considerable intervals, notwithstanding that the stone piers which support the instrument rest on arches at a height of not less than 50 feet from the ground; in fact, but for this fortunate circumstance this mode of treatment would have been hardly admissible.

To economise space, in place of the actual individual results obtained, a list of the mean adopted errors of azimuth is here appended, together with the limiting dates of the period to which they are supposed to apply, and likewise the means of corresponding groups of errors of level.

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	Limiting Dates for each group.	Mean adopted Azimuthal Error.	No. of Determinations on which it depends.	Mean Level Error for the like period.	No. of Determinations on which it depends.
1875	Aug. 11—Aug. 12	− 1″·82	1	+ 4″·96	2
	Aug. 14—Aug. 16	+ 1·84	2	+ 5·69	3
	Aug. 20—Oct. 2	+ 0·26	3	− 3·49	12
	Oct. 5—Oct. 22	+ 0·93	4	− 2·26	9
	Nov. 8—Nov. 25	+ 4·58	3	+ 1·99	5
	Dec. 7—Dec. 20	+ 5·62	2	+ 6·06	2
	Dec. 22—Jan. 5	+ 7·83	3	+ 7·96	3
1876	Jan. 18—Jan. 22	(+ 9·80)	0	+ 7·89	2
	Jan. 25—Feb. 11	+ 11·76	3	+ 6·14	6
	Feb. 22—Feb. 24	+ 10·44	2	+ 5·85	3
	Feb. 29—Mar. 10	+ 8·55	3	+ 4·00	5
	Mar. 11—Mar. 29	+ 6·00	6	+ 0·44	10
	Apr. 2—Apr. 8	+ 6·50	2	− 0·86	4
	Apr. 21—Apr. 29	+ 3·30	3	− 3·43	5
	May 1—May 9	+ 1·89	2	− 9·27	4
	May 29—May 30	(− 0·06)	0	− 8·47	2
	June 16—June 28	− 2·01	2	− 13·76	7
	July 26—Aug. 2	− 5·81	1	− 3·50	2
	Aug. 9—Aug. 17	− 1·00	4	− 4·59	6
	Aug. 21	− 4·41	1	− 5·52	1
	Aug. 25—Sept. 9	− 12·17	2	− 9·60	7
	Sept. 14—Oct. 5	− 4·55	2	− 5·52	7
	Oct. 7—Oct. 14	− 3·76	1	− 1·54	5
	Nov. 7—Nov. 17	− 1·14	1	− 4·50	3

N.B. On June 27, the level error having become troublesomely large, the screws were altered in order to diminish it; but this alteration does not appear to have affected the azimuth error. After the alteration the level errors were more unsteady, and a month later the screws were tightened to ensure greater fixity to the instrument. This time, owing probably to the greater force used, the Y appears to have shifted in azimuth sensibly.

A casual inspection of the above azimuth errors is sufficient to indicate a marked and regular fluctuation, of which the maximum and minimum coincide closely with the periods of greatest cold and heat respectively, and for which no sufficient reason immediately suggests itself. It is to be remarked, however, that about 14 feet W.S.W. of the western pivot of the transit is situated the pier of the Equatoreal, which, with the wall surrounding it, forms an immense cylindrical mass of nearly solid brickwork 9 feet in diameter, built up from the ground. It follows, therefore, that

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the conditions of radiation from the transit supports in this direction is materially different from that in every other, and that the temperature of the pier of the Equatoreal would not only change much more slowly than the surrounding walls of the transit-room, but would be subject to much less extreme degrees of heat and cold. This supposition is sufficient to explain the general tendency observed, although the magnitude of the variation is certainly greater than would have been expected. That this is the true explanation is strongly supported by the consideration of the less steady level errors, which are positive in the winter months and largely negative in the summer, precisely as would be the case if the explanation is correct, and moreover exhibit maxima and minima almost synchronising with the more trustworthy azimuthal results. As it must be conducive to accurate observation that all known causes of change of position of meridional instruments be eliminated, I have been induced to call attention to these results, in order that the surroundings of more important instruments may be made as symmetrical and homogeneous as possible.

Orwell Park Observatory,
1878, *March* 1.

List of Known Accordances between Cometary and Observed Meteor Showers. By Prof. A. S. Herschel.

This list of comet and meteor shower accordances supplies a key to the outline list presented two years ago in the Report of the Council of the Astronomical Society (vol. xxxvi., p. 220), in which the meteor showers, regarded as having close or distant affinities in the positions of their orbits to those of certain comets (enumerated in the list), were not, on account of the great length of such a table, particularly recorded and described. The former list contains a column (Column 9 in the present list) in which the degree of accuracy of the supposed accordance of each correlated meteoric shower, both in time and in position of the radiant-point, was represented by certain letters and accents, of which the use was explained in the introduction to the Table,* and they are here reproduced for identification of the meteor showers referred to in the list. But an additional column of the same nature is now supplied (No. 8 in this list), giving the same characters more accurately, and describing the accuracies of agreement of several new meteor showers which are noticed for

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* A *a*, B′ *b*’ C″ *c*” ? ; denote distances of 3, 6, 9, 12, 15, 18, and over 18 degrees (by the letters and sign of interrogation), and similar numbers of days (by the accents, comma, and semicolon), from exact accordance with a comet shower; parentheses being used to enclose them, thus (A), when the meteor shower, and brackets, thus [A], when the comet appulse is of longer duration than 6 days.